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The purpose of this study was to determine the extent that two open-plan house designs could accommodate the activities of family living in each of the five stages of the family life cycle.

A hypothetical family with three children was identified according to the five stages of the family life cycle: beginning family stage, expanding family stage, launching family stage, middle-age family stage, and old-age family stage. Two open-plan house designs were selected. The living areas of the two house designs varied in shape: one was rectangular and the other L-shaped.

From the review of the literature, the family living activities were categorized into nine groups: food preparation, dining, business, ironing, sewing, leisure, entertaining, hobbies, and children's indoor play. The amount of space, furnishings, and storage needed to carry on the family living activities as summarized in the review of the literature was used. The specified amount of space for each activity was drawn to scale on the floor plans. The furnishings and storage units were drawn in place and designated by letters of the alphabet. Each activity area was identified with a specific color. Five floor plan designs were illustrated for each house design, one for each stage of the family life cycle.

The amount of space, furnishings, and storage needed for ironing, sewing, business, hobbies, and food preparation remained the same throughout the family life cycle. Dining, leisure, and entertaining were the activities that the amount of space, furnishings, and storage varied in each stage of the family life cycle.

In each of the selected house designs, there were overlapping of activity areas. More of the activity areas overlapped in the house design with the L-shaped living area than in the house design with the rectangular shaped living area.

The family living activities of the beginning family, middle-age family, and old-age family could be accommodated in the two open-plan house designs. In the expanding family stage, the family living activities could be accommodated in the L-shaped living area; and in the rectangular shaped living area with minor adjustments. Whereas, in the launching family stage, the family living activities could be accommodated in the rectangular shaped living area, and in the L-shaped living area with minor adjustments.

To plan family living areas for versatility, designers need to be aware of the five stages of the family life cycle and the changes involved in each stage. More up-to-date research needs to be done on the types of family living activities carried on in the varying stages of the family life cycle, and the types of activities carried on in the kitchen, dining room and living room.

THE DESIGNATION OF FAMILY LIVING ACTIVITIES IN
TWO OPEN-PLAN HOUSE DESIGNS FOR THE FIVE
STAGES OF THE FAMILY LIFE CYCLE

by

Patsy Hand Mobley

A Thesis Submitted to
the Faculty of the Graduate School at
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in Partial Fulfillment
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Approved by

Clara Ridder
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APPROVAL PAGE

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CHAPTER I

STATEMENT OF THE PROBLEM

Background of the Study

The first houses built in America were one-room shelters for the early colonists. They were built for protection, sleeping, cooking, eating, and everyday living. From the all-purpose one-room house, the plan of the domestic dwelling developed to two rooms and then to four rooms. In early Colonial houses, all the household activities centered around one large central fireplace for cooking and heating in one-room and two-room houses and around two fireplaces in four-room houses. In New England the "salt-box" house evolved when rooms were added to the rear of the two-room dwelling. In the South, two-story houses were built; the first floor had four formal rooms with a large hallway in the center of the house and the second floor had four large bedrooms without closets or bathrooms. During the Georgian period of the eighteenth century, the complexity of the house plan increased with the addition of the kitchen, servants' quarters, offices, and rooms for formal entertaining. The house plan of the Georgian houses consisted of box-like rooms completely enclosed except for a door and one or two windows (Whiton, 1963; Gottlieb, 1965).

The box-like room arrangement remained throughout the nineteenth century. But, in the latter part of the nineteenth century and beginning of the twentieth century, Frank Lloyd Wright reacted against the box-like building trend by advocating an "open-plan" concept whereby the parlor, sitting-room, halls, dining room, and den merged into one large living space designed so that various activities could be performed at the same time (Bauer, 1934).

The open-plan concept was slow to materialize. It was not until the middle of the twentieth century that open planning began to be illustrated and discussed in the literature. In 1950 the Committee on the Hygiene of Housing stated:

Dwelling space is too often provided by dividing a box into a group of smaller boxes. In elaborate houses such subdivision has been carried to the extreme of providing a special room for nearly every activity. The newer approach to house design aims at flexibility by combining related activity areas in spacious rooms with as few separations as possible (p. 17).

Since the late 1950s, builders have begun to use open planning, partially due to the many small-size houses being built. Living and entertaining patterns have become more informal and relaxed. With the disappearance of the servant and the secluded kitchen, the cook enjoys being with the family and friends while preparing meals. Furthermore, the spacious feeling of open planning prevents the claustrophobia of cramped small rooms.

According to Agan (1950), "The requirements for a family dwelling change during the life of the family" (p. 351). Agan cites the National Conference on Family Life as designating such periods of family life as the beginning family, the expanding family, the launching family, the middle-age family, and the old-age family (p. 351). Agan also said that "it is difficult for the average family to occupy the same dwelling throughout all the periods of its life cycle, although some houses are so well planned that this is possible" (p. 354).

Based upon research of family activity patterns and space needs in 1959 (Northeastern Farm Housing Technical Committee) and 1961 (Smith, Gerhold, and Kivlin), recommendations for farmhouse planning were made for families in each stage of the family life cycle. These recommendations were made only for families living in large farmhouses in the Northeast. No references were found on research pertaining to accommodating activities of family living in open-plan house designs.

Neither was research found which related specifically to the accommodation of living areas in open-plan house designs to the varying stages in the family life cycle. Therefore, the question was asked: Could open-plan house designs accommodate the activities of family living in the five stages of the family life cycle?

Purpose of the Study

The purpose of this study was to determine the extent that two open-plan house designs could accommodate the activities of family living in each of the five stages of the family life cycle.

Definitions of Terms Used

The open-plan house design for this study was a house design that incorporates the living room, dining room, and kitchen into one large open area in which activity areas may be partially separated.

The stages of the family life cycle that were used for this study were those proposed by the National Conference on Family Life: the beginning family, the expanding family, the launching family, the middle-age family, and the old-age family. The following brief summary of each stage was taken from Agan (1950, pp. 352-354) and Agan and Luchsinger (1965, pp. 16-21).

The beginning family consists only of the husband and wife. Usually this is a two-year period beginning at marriage, with the man being at the average age of twenty-two and the woman, twenty. They are not yet established financially. The wife may be employed part or full time to supplement income.

The expanding family is the stage which begins at the birth of the first child and continues for five to twelve

years, depending upon the birth of the last child. During this stage, the husband is developing his business or profession; therefore, the family's finances are more certain than during the previous stage, but not bountiful.

The launching family begins when one or more of the children have reached adolescence and ends when they have left home for their education, careers, or marriages. Although the husband has major financial responsibilities during this time, he is well established in his career.

The husband and wife are alone again during the middle-age family stage. At the beginning of this stage, the parents are between forty-five and fifty years old. The wife may resume her career or find other interests outside the home, while the husband is at the peak of his career.

By the time of the final stage, the old-age family, the couple's income has been reduced. Although the husband and wife are in their mid-sixties and over and their strength is declining, they wish to maintain their own home as long as possible.

Limitations of the Study

This study was limited to: (1) one hypothetical family with three children; (2) two open-plan house designs; and (3) specific family living activities and their space requirements that were determined from the literature for each stage of the family life cycle.

CHAPTER II

REVIEW OF THE LITERATURE

Plans for houses have evolved through the years from the one-room log cabin to the multi-story mansion. In the dawning of the so called "modern age," open planning became prominent. The concept of open planning, advocated by Frank Lloyd Wright, was the idea of having one large living area designed so that various activities could be performed at the same time. Throughout the literature various aspects of open planning have been discussed. In 1942 an article in the Architectural Record stated that

with the freedom of informal living, tight compartments are giving way to open planning and the multi-use of rooms. Space is being used for as many of the twenty-four hours as possible.

Rooms of combined use are larger, more interesting and combat that claustrophobia that made the family seek escape in the family car or in the village movie. . . . (p. 57)

The Committee on the Hygiene of Housing (1950) said that open planning "aims at flexibility by combining related activity areas in spacious rooms with as few separations as possible" (p. 17). Pidgeon and Crosby (1960) affirmed that the open-plan "allows for a feeling of space, the most valuable and expensive thing in a house" (p. 9). In 1962 Rogers stated:

. . . an increasing number of people wish to cook and talk with their families and friends at the same time. They are quite willing to throw all of these living areas together as long as there is an ordered arrangement that is beautiful and simple and that brings joy and harmony to their way of life (p. 150).

Rogers (1962, pp. 162-165) suggested that exhaust fans and acoustical treatment in the kitchen attributed to the openness of the kitchen plan. The plan mainly gained its popularity with the disappearance of the servant.

According to Whiton (1963, p. 409), rooms need to be as flexible as possible because of high construction costs, lack of domestic help, and increasing complications in living.

Therefore, open planning for houses was in response to the need for freedom of informal living, a feeling for space, a desire for flexible living areas, the wish to be with the family and friends while cooking, the high cost of construction, the lack of domestic help, and the increasing complications in living.

To plan activity areas for a hypothetical family in relation to the family life cycle characteristics, it was necessary to know the family living activities the family members participated in during the varying stages of the family life cycle; and the space, furnishings, and storage needed to carry on those activities. Thus, the remainder of the review of the literature is divided into two sections:

(1) family living activities; and (2) space, furnishings, and storage for those activities.

Family Living Activities

Several studies conducted from 1950 to 1961 in the Western, Northern, Northeastern, and Southern regions of the United States dealt with the types of activities family members carried on in the varying stages of the family life cycle in the kitchen, dining room, and living room. In North Carolina, Campbell (1950) determined the activities carried on in the dining area of thirty families that had young children and lived in small houses or apartments. These activities consisted of family meals, company meals, playing games, hobbies, office work by the husbands, studying, reading, writing, ironing, talking with visitors, and machine sewing.

Two studies made in the early 1950s were concerned with the types of activities carried on in the kitchen and living room as well as in the dining room. They were somewhat similar in the objectives, methodology, and results. Although some of the activities differed, both studies found that the families did most of their living in the three rooms studied.

In 1952 Thorpe and Gross interviewed fifty rural white families near Lansing, Michigan. Records of daytime activities carried on in the kitchen, dining room, and living

room were kept by the cooperating families for one Saturday, Sunday, and weekday. Leisure by one's self was the category used for individual hobbies or handicrafts such as making scrapbooks or knitting, radio listening, reading, smoking, and playing with pets. Leisure with family members was categorized as two or more family members listening to the same radio program, visiting, playing games, or playing musical instruments together. The activities carried on in the kitchen, dining room, and living room in decreasing order of time spent, were:

Kitchen

Eating
Meal preparation
Clearing away meals
Leisure by one's self
Leisure with family members
Leisure with guests

Living Room

Leisure by one's self
Leisure with family members
Leisure with guests

Dining Room

Leisure by one's self
Leisure with family members
Leisure with guests
Eating
Setting the table
Clearing away meals
Studying
Business
Sewing
Resting
Child care

In 1953 Nolan and John made a study of fifty-three Pennsylvania families who kept detailed records for one week in the summer and one week in the winter of the activities performed in each room of the house, of the time required for each, and of the family members participating. The running accounts were analyzed to determine the variety and extent of the activities carried on in farm houses and the ways in which family living patterns were related to the size and

arrangement of rooms and family characteristics. It was found that the kitchen was used for a greater number of activities and for a larger amount of time than was either the dining room or the living room. The activities identified in the kitchen, dining room, and living room were:

Kitchen

Food preparation--canning and freezing
Eating
Sitting activities--reading, hand sewing, keeping books, studying, visiting, listening to the radio, family recreation, and resting
Ironing
Washing

Dining Room

Eating
Ironing
Playing and family recreation
Hand sewing
Radio listening
Reading
Visiting
Keeping books
Studying by children

Living Room

Reading
Playing and family recreation
Visiting
Resting
Radio listening
Keeping books
Hand sewing

Although the next two studies were conducted eight years apart, they both were concerned with the activities of families in the varying stages of the family life cycle. The investigators classified the participating families according to the ages of the children. The 1953 study divided the families into three types, and the 1961 study divided them into four. Only a portion of the results of the 1953 study were in relation to the varying types of families; whereas the majority of the results of the 1961 study related to the family types.

The 1953 study was conducted by Grady, Smith, and Kuschke in Rhode Island as a supporting project of the Northeastern Regional Research study on Housing. The researchers determined the activities families and individual family members carried on in the house and the space, furniture, and equipment they used for those activities. Four hundred homemakers were interviewed in rural areas of Rhode Island, and fifty of those kept detailed records for four consecutive weeks of all leisure activities of each member of the family.

The participating families were divided into three types. Type I families consisted of young married couples and families with children including at least one child under eight years. Type II families had children between eight and seventeen years, with none younger. Type III families consisted of older couples and families with no children under eighteen, except for relatives who were temporary members of a few families.

Although it was found that the composition of the families was related to the differences in leisure-time activities, the conclusions of the study reported by the investigators were:

Leisure activities, as shown in this study, are as varied as are the individuals and families. They are vigorous or quiet, shared or independent, planned or casual. They may require much space or little, special equipment or none.

An analysis of the participation of families in leisure activities was made, based on two ratings: (1) the percentages of families who participated in each activity; and (2) the total number of times each activity was recorded. The pattern of activities, as shown by the combined rating was:

- 1 Reading newspapers
- 2* Reading magazines
- 2* Listening to the radio
- 3 Entertaining callers
- 4* Children's indoor play
- 4* Reading books
- 5 Sewing
- 6 Entertaining with guest meals
- 7* Watching television
- 7* Table games
- 7* Entertaining with refreshments
- 7* Miscellaneous hobby
- 8 Reading aloud
- 9* Knitting or crocheting
- 9* Miscellaneous games
- 10 Listening to records
- 11 Entertaining overnight
- 12 Playing board games (pp. 39-40)

Eight years later Smith, Gerhold, and Kivlin (1961), observed 100 Pennsylvania farm households for two purposes: (1) to define and compare different uses farm families made of houses which would characterize patterns of activities; and (2) to analyze those activity patterns to facilitate better house planning and utilization. The four family types defined for this study were: Pre-school families with all children less than six years of age; Overlapping families with some children less than six and some six or over; School-age families with children six to eighteen years or

*Identical combined rating.

over; and All-adult families with no members under eighteen years of age.

Each family was observed in their home for approximately two hours per day on four to eight different days. During the observations, the activities for each member of the household, the location of the activity, and the approximate time when any individual changed activity or location were recorded. A major activity was defined as any activity that consumed 20 per cent or more of the total time in one location. Leisure activities consisted of relaxing, visiting, listening to the radio, reading, or being read to (p. 23). The major activities of each family type were found to be:

<u>Family Type</u>	<u>Kitchen</u>	<u>Dining Room</u>	<u>Living Room</u>
Pre-school	food operations leisure	leisure	leisure
Overlapping	food operations leisure eating	leisure eating	leisure
School-age	food operations leisure	leisure	leisure
All-adult	food operations	leisure eating	leisure

The other activities performed in the kitchen were: eating, ironing, laundry, house care, care of family members, sewing, miscellaneous activities, and personal care. The other activities performed in the living room by the different family types were:

Pre-school--watching television while carrying on
some other activity; and sewing and
ironing

School-age--sewing, business, and study

Overlapping--sewing, business, and study

All-adult--sewing, business, and study (pp. 23-24)

The space needs of teen-agers' leisure activities based on research conducted in Nebraska was reported by Withrow and Trotter in 1961. One objective of the study was to determine the recreational or leisure activities carried on by families with teen-age children. Thirty homemakers who had at least one child enrolled in junior or senior high school were interviewed to obtain information on the types of leisure-time activities, frequency of participation, site of activity, equipment used, and its place of storage. The activities that were carried on by more than 20 per cent of the sample were grouped as follows:

<u>Quiet or Private</u>	<u>Social</u>	<u>Active</u>
Study	Guests for meals	Dancing
Magazines	Guests for snacks	Photography
Books	Guests for cards	Model cars
Radio	Guests for visiting	Painting
Model cars	Quiet games	Carpentry
	Music	Games
	Television	Records
	Records	Sewing (p. 36)
	Magazines	
	Radio	
	Books	
	Handwork	

The five activities that involved outside guests and that were carried on most frequently in the living area of

the house were visiting, snacks, meals, cards, and dancing. Those that involved only teen-agers or family members and were also carried on most frequently in the living area of the house were television, magazines, books, radio, records, quiet games, music, handwork, and photography. The activities that had the necessary equipment stored in the bedroom and were used in the living area by teen-agers were quiet games, photography, and handwork.

Those activities that were participated in by both teen-agers and parents, but in different locations were:

Studying--bedroom for the teen-agers
kitchen for the parents

Books--bedroom for the teen-agers
living area for the parents

Music--dining area for the teen-agers
living area for the parents

Radio--bedroom for the teen-agers
living area for the parents

Photography--living area and basement for the teen-agers
bedroom for the parents (p. 361)

To combine the family living activities identified by the various researchers, the studies were grouped according to the type of findings. The studies by Campbell (1950), Thorpe and Gross (1952), and Nolan and John (1953) identified the types of activities families carried on in the kitchen, dining room, and living room. The findings of those three studies are combined as follows:

Kitchen

Eating
Meal preparation
Clearing away meals
Ironing
Washing
Studying

Dining Room

Eating
Family meals
Company meals
Setting the table
Clearing away meals
Studying
Writing
Ironing
Machine sewing
Child care

Kitchen, Dining Room, and Living Room

Hobbies
Radio listening
Smoking
Playing with pets
Playing games
Hand sewing

Visiting
Keeping books
Reading
Resting
Playing musical
instruments

Grady, Smith, and Kuschke (1953) and Smith, Gerhold, and Kivlin (1961) identified the activities carried on by families in the varying stages of the family life cycle. Since the families participating in the two studies were divided differently by number of family types and the findings reported differently, a comparison of the types of activities carried on in the various types of families could not be made. However, the activities identified by Grady, Smith, and Kuschke as those taking place in many locations were: children's indoor play; watching television; entertaining overnight; and entertaining with refreshments. In the study by Smith, Gerhold, and Kivlin (1961), the additional activities that were carried on in the kitchen by the participating families were care of family members, sewing, and

personal care. Another activity carried on in the living room in the School-age, Overlapping, and All-adult families was studying.

Withrow and Trotter (1961) reported on the types of activities carried on by teen-agers and their parents. The additional activities reported were: model cars, guests for cards, photography, painting, and carpentry.

All family living activities carried on by participating families in the reported studies, disregarding the location of the activities, are summarized below:

Clearing away meals	Leisure
Child care	Playing games
Eating	Board games
Family meals	Cards
Company meals	Table games
Entertaining	Playing musical instru-
Callers	ments
Dancing	Playing with pets
Guests for playing cards	Radio listening
Guests for refreshments	Reading
Overnight guests	Magazines
Ironing	Newspapers
Hobbies	Books
Carpentry	Resting
Model cars	Smoking
Painting	Watching television
Photography	Meal preparation
Handwork	Setting the table
Keeping books	Sewing
	Washing
	Writing

Space, Furnishings, and Storage for Family Living Activities

The second section of the review of the literature comprises the recommended space requirements determined for

the family living activities selected for the hypothetical family of this study. These grouped by category are:

Food preparation	Leisure (continued)
Dining	Resting
Family meals	Watching television
Business	Entertaining
Keeping books	Callers
Writing	Dancing
Ironing	Guests for playing cards
	Guests for refreshments
	Company meals
Sewing	Hobbies
Leisure	Handwork
Playing games	Model cars
Board games	Painting
Cards	Photography
Table games	Children's indoor play
Radio listening	
Reading	
Magazines	
Newspapers	
Books	

Food Preparation

Two studies were made on space allowances needed to use the kitchen appliances and cabinets for food preparation activities. The amount of space needed between the counter or appliances and the dining table was recommended as 36 inches by Gassett (1957). McCullough, et al. (1962, Table 2, p. 5) gave the following clearances for using cabinets and appliances:

Using kitchen base cabinet	36 inches
Using wall oven.	36 inches
Using refrigerator	36 inches
Using dishwasher (based on dishwasher	42 X 44
24 inches wide)	inches

Dining

The studies reported for dining are those concerned with table dimensions, clearances, and storage units. The varying space recommendations determined by the different researchers are organized under the following headings: table dimensions, clearances, and storage units.

Table Dimensions

Johnson and Hurley (1955) found that satisfactory widths for a dining table ranged from 36 to 44 inches. Only 7 inches were allowed for the serving dishes on a 36-inch width table; whereas a 42-inch table allowed 13 inches and a 44-inch table allowed 15 inches.

With individual covers 21 inches long and $14\frac{1}{2}$ inches deep, a table 50 inches long was recommended for four persons, 71 inches for six, and 92 inches for eight. However, when 21-inch covers were placed only on the long sides of the table, the recommended table lengths were 42 inches for four, 63 inches for six, and 84 inches for eight.

Gassett (1957) recommended:

The necessary serving dishes and a simple cover for each of six people may be placed on a table 36 X 72 inches in size without overcrowding. Thirty-six inches might be considered the minimum width of the table if people are to be seated on both sides of the table (p. 4).

Clearances

Johnson and Hurley (1955) made the minimum recommendation of 18 inches in depth for leg room under the table. The minimum recommendation for passing between pieces of furniture or between pieces of furniture and the wall was 22 inches.

Gassett (1957) pointed out:

The average amount of space between the chair back and the edge of the table when the subjects were eating was 15 inches. Allowing for the thickness of the chairback plus 12 to 13 inches for the depth of the body of the person serving or passing behind those seated, 30 inches may be considered the minimum margin between the table edge and the nearest barrier (p. 4).

In the publication prepared by the Southern Regional Housing (S8) Research Technical Committee (1958), it was reported that the minimum space requirements for clearance between the table edge and wall were 24 inches for getting up and 30 inches for serving. The more liberal space requirements were 30 inches for getting up and 36 inches for serving.

From McCullough, et al. (1962, Table 2, p. 5), some of the recommended clearances that related to dining were:

<u>Activity</u>	<u>Clearance</u>
Edging past seated person.	16 inches
Sitting at table, armless chair.	20 inches
Foot extension under table	20 inches
Sitting at table, armchair	22 inches
Walking past seated person	24 inches
Walking between wall and table	26 inches
Rising from table, armless chair	32 inches
Rising from table, armchair.	34 inches
Rising from an armless chair in a confined area.	38 inches
Rising from an armchair in a confined area	40 inches
Serving seated person.	44 inches

Storage Units

The Committee on the Hygiene of Housing (1950, pp. 24-25) recommended the square footage for storage units for meal service supplies for the number of persons in a family. Therefore, for two persons 4 square feet of storage space would be needed, for three persons 6 square feet, for four persons 6 square feet, and for five persons 13 square feet.

Business

McCullough (1952) gave the specifications for a desk unit which would accommodate stationery, letters, miscellaneous desk supplies, clippings, business papers, school books and papers, a dictionary, camera, albums, gift wrappings, and miscellaneous items such as a stamp collection. The measurements for the unit for desk supplies were:

Depths	
Unit with shelf storage, minimum. . . .	12 inches
Unit with drawer storage, minimum . . .	16 inches
Drop lid	
Minimum	12 inches
Recommended	14 inches
Widths	
Minimum	32 inches
Recommended	36 inches
Heights of writing surface	
Maximum	30 inches
Recommended	28 inches

The recommended space requirements for a desk for writing and typing were 36 inches wide and 20 inches deep. Height was 26 inches for a typing surface and 28 to 30 inches for a writing surface.

Cooperative research on space standards was conducted by the Western Region Agricultural Experiment Stations (1960) for home planners. In the report on space standards for the office or study, the following recommendations were made:

Leg room under desk	22 inches
Space to walk past a seated person or between wall and low furniture . . .	24 inches
Space required by a seated person in addition to chair space.	30 inches
Clearance for women to push chair back to get up.	36 inches
Clearance for men to push chair back to get up.	38 inches
Clearance for women to stoop to bottom shelf of bookcase.	38 inches
Clearance for men to stoop to bottom shelf of bookcase.	44 inches
Dimensions	
Desk	
Width	50 to 60 inches
Depth	20 to 36 inches
Bookcase depth.	12 inches

The recommended clearance for using a desk and a bookcase was determined to be 36 inches for both activities (McCullough, et al., 1962).

Ironing

The Committee on the Hygiene of Housing (1950) determined that 6 square feet were needed for the ironing board, plus 6 inches for the sides and back and 2 feet 3 inches for the front. Therefore, the total space needed for ironing was 24 square feet.

Sewing

In 1957 Johnston, Smith, and Wise determined the physical space needed to perform the various sewing tasks with the types of equipment commonly used in the home. Five to twenty-four homemakers constructed a garment to determine the components of the total task, and of those twenty-four, five to fifteen were studied to determine the flow of work. The space recommended for machine sewing was explained as follows:

Space needed during machine sewing was found to be an area 6 feet and 4 inches-by-5 feet and 4 inches. Useful equipment included an ironing board at sitting height placed to the left of the sewing machine and at right angles to it. Auxiliary table space at sitting height to the right of the machine and at right angles to it gave a U-shaped work space. Cutting and fitting spaces were not included in this area. If a sewing room were being planned, it would well be added, but the majority of families must use the room in which they sew for other purposes so that a sewing area in a room is the more usual practice (p. 57).

Storage was designed by McCullough (1952) for the following sewing supplies and equipment.

Sewing machine	Scissors and other small tools
Dress form	Mirrors, 2
Ironing board	Fabrics for garments
Sleeve board	Patterns
Iron	Findings
Pressing accessories	Trimmings
Bowl for water	Scraps of cloth
Cutting table	Mending
Sewing table	Hanging rod for unfinished
Skirt marker	garments (p. 42)
Yardstick	

The two storage units designed by McCullough measured 2 feet deep and 7 feet high. The unit with the portable sewing machine was 4 feet wide and the unit with the standard sewing machine was 5 feet wide.

Leisure

Four studies that dealt with the space requirements for the activities of leisure, entertaining, and hobbies are reported.

The Committee on the Hygiene of Housing (1950) identified the space requirements for the furniture, storage, and their use for family recreation and self-improvement for one to six persons. The space requirements identified for two to five persons were as follows:

Furniture or Storage Units	Area Sq. Ft.	Additional Space for Use of Units
Space for two persons		
Sofa	21	3" from sides and back; 2' 6" from front
Two easy chairs	16	3" from sides and back; 2' 6" from front
End table	3	3" from sides and back; 1' from front
Coffee table	6	1' 6" clearance four sides
Radio-phonograph	4	3" from sides and back; 2' 6" from front
Straight chair	2	3" from sides and back; 2' from front
Stand or shelf for plants.	3	3" from sides and back; 2' from front
Unclassified	12	3" from sides and back; 2' 6" from front

Furniture or Storage Units	Area Sq. Ft.	Additional Space for Use of Units
Bookcase	6	3" from sides and back; 2' 6" from front
Records and games.	3	3" from sides and back; 2' 6" from front
Additional space for three persons		
Desk or table.	10	3" from sides and back; 3' from front
Desk chair	2	Included in desk area
Bookcase	3	3" from sides and back; 2' 6" from front
Additional space for four persons		
Small lounge chair	6	3" from sides and back; 2' 6" from front
End table.	3	3" from sides and back; 1' from front
Desk or table.	10	3" from sides and back; 3' from front
Chair.	2	Included in desk area
Bookcase	3	3" from sides and back; 2' 6" from front
Additional space for five persons		
Small lounge chair	6	3" from sides and back; 2' 6" from front
Desk or table.	10	3" from sides and back; 3' from front
Chair.	2	Included in desk area
Bookcase	3	3" from sides and back; 2' 6" from front

McCullough (1952) recommended that a unit for books 10 inches deep was adequate for the home, whereas the width and height of the unit varied depended upon the number of books.

A unit for magazines was designed to measure 24 inches wide, 12 inches deep, with variable heights.

In the report by Withrow and Trotter (1961) on space needs for leisure activities of teen-agers, the activities and equipment used for those activities were obtained from the interviews with thirty homemakers. The following list of leisure activities and the most frequently occurring equipment used for those activities were taken from that report:

Studying	Desk and small items
Television	TV cabinet
Magazines	25 or less
Books	97 to 270
Records	Player plus fewer than 50 records
Quiet games	10 or more boxes, boards, and small items
Music	Piano plus music
Sewing	Machine
Photography	More than one camera plus flash
Models	6 to 12 models and small equipment
Handwork	Small items plus yarn and scraps
Visiting	
Snacks	Trays
Cards	Cards plus table plus folding chairs
Dancing	Record player plus fewer than 200 records

(1961, Table 1 and 2, pp. 361-362)

The amount of space most frequently used for various leisure activities, as determined by Bland and Mize (1962) were:

<u>Position of Person</u>	<u>Activities</u>	<u>Width</u>	<u>Depth</u>
		<u>feet</u>	<u>feet</u>
Sitting:			
on sofa	Playing cards	1	1
on sofa or armchair	Reading, Conversation, Eating snack, Viewing television	1	1
at desk	Studying, Writing . . .	2	1½
in folding chair	Playing cards	1½	1½

<u>Position of Person</u>	<u>Activities</u>	<u>Width</u>	<u>Depth</u>
		<u>feet</u>	
Sitting or Lying on Floor:	Coloring	2	1½
	Playing games.	1½	1½
Standing:	Adjusting television, Record Player, Radio .	1	1½
	Getting object from low shelf.	1	1½
	Serving snack.	1½	1½
	Setting up card table.	3½	3
	Setting up folding chairs	2½	2
	Pulling chair from table.	2	1½

(Table 2, p. 13)

Listening to the radio and record player, when done with another activity, did not require additional floor space other than to operate the equipment. The floor space required for viewing television, reading, and conversation, other than for a person's feet, were dependent upon the furniture arrangement.

In specifying the amount of space most frequently used for the various leisure activities, a limited and a liberal living area were determined. A limited living area of approximately 144 square feet was suggested for a family of four. The area suggested for the liberal living area was 196 square feet.

The storage unit planned for the supplies of the activities for the limited living area measured 6 feet 10 inches wide, 2 feet deep, and 6 feet 6 inches high. The unit stored books, games, magazines, records, card table,

folding chairs, toys, and writing supplies. In addition to the supplies of the limited living area, a television and record player were included in the storage for the liberal living area. The unit designed for the liberal storage measured 8 feet wide, 2 feet deep, and 6 feet 6 inches high.

Since the early studies determined the space requirements for the various leisure activities, the more recent sources dealt with the provision of adequate furnishings and efficient arrangements involving different size furniture.

In 1968, Faulkner and Faulkner gave the following condition for providing areas for conversation and reading:

Conversation

Conversation is the major group activity, pervading all parts of the home but reaching greatest intensity in the living and dining spaces. Basic needs are:

Space sufficient for the normal number of persons. Each person in an easy chair, for example, needs a space 3 feet wide by 2 feet deep, but with legs stretched out he may need a space 5 feet deep.

Comfortable seats for each participant; a minimum of one good seat for each permanent member of the family and additional ones to accommodate guests. Arrangement of seats and tables in a generally circular or elliptical pattern so that each person can look at others easily and talk without shouting; arrangement should be ready for group conversation without moving furniture. A diameter of 8 to 10 feet is desirable.

Light of moderate intensity with highlights at strategic points.

Surfaces (tables, shelves, and so on) on which to put things.

Reading

Members of a literate culture enjoy reading if the reading material is stimulating and the reading conditions are good. Minimum essentials are:

Seating that gives adequate support to the back (to the neck, arms, and back for maximum comfort); resilient but not soporific.

Light coming over one shoulder; moderately strong daylight or artificial light that illumines the room and concentrates fairly intense but diffused light on the reading material.

Security from distracting sights, sounds, and household traffic.

Desirable additions are a chairside table, accessible shelves to hold books and magazines, and enough space to stretch the eyes occasionally. Such conditions, good for more or less casual reading, can be easily achieved in typical living rooms. If, however, one or more members of the family do concentrated reading, greater seclusion is needed, and bedrooms or a study should be appropriately planned (pp. 21-22).

Some of the furniture measurements given in Decorating Ideas for Every Room in Your Home (1969), The Practical Encyclopedia of Good Decorating and Home Improvement (1970), and Architectural Graphic Standards (1971) were:

<u>Furniture</u>	<u>Measurements</u>		
Sofa	30 X 48-108	32 X 50-102	30 X 48-112
Lounge	33 X 33	32 X 32	33 X 33
End Table	18 X 30	18 X 28	19 X 21
Coffee Table	22 X 54	22 X 44	23 X 45
Bookcases		18 X 38	15 X 38½
Television console		19 X 36	17 3/4 X 32
Television/stereo console		20 X 66	20½ X 68½
Children's chair			15 X 16

Children's Indoor Play

Play Area

In addition to the information obtained in the housing study in the Western Region, Johnson (1952) obtained further information that would provide a basis for estimating the space desirable for indoor play for the preschool child and for storage of his play materials. The data were obtained from interviews with 116 rural farm homemakers in Arizona, and from observing nursery school children at play.

In the recommendations for the size and location of indoor play space, Johnson stated that

an area 3 feet or $3\frac{1}{2}$ feet long and 2 feet wide, or 6 to 7 square feet, could well be planned for in the kitchen if a child's table and chair of average size were provided as a center for play activities such as crayoning.

For play activities that would probably be carried on in the living room, such as play with blocks or other manipulative play materials, an area of 4 to $4\frac{1}{2}$ feet long and 3 feet wide (12 to $13\frac{1}{2}$ square feet), should be made available (p. 181).

In the publication prepared by the Southern Regional Housing (S8) Research Technical Committee (1958), it was pointed out that:

Any play area should provide furnishings and activity space. As distinguished from a playroom, a play center is an organized play space in a room used primarily for other purposes. When there are two or more play centers in a given house, the major play center is the one that permits moderately active play and a variety of activities; the minor center is one that permits quiet play only and a limited variety of activities.

.

Only one-fourth of the floor space allocated to the play center should be occupied by toy storage devices, child's table and chairs, or large play equipment. To permit free movement during play, the width of the center should be not less than 3 feet 6 inches. . . . (p. 61)

The minimum space standard for a minor center was 20 square feet. The minimum space standard for a major center was 35 square feet for one child and 50 square feet for two children. The moderate space for two children was 70 square feet.

Day (1963) conducted a study on the design and use of a three-height table for children. The table was built in two sizes: 18 X 20 X 22 inches for the small table and 24 X 26 X 28 inches for the large table. The tables were use-tested in twenty-four one-child families under actual conditions for a period of six weeks. Day concluded that

For the small table the space required varied from a minimum of 20 X 33-3/4 inches to a maximum of 22 X 42-3/4 inches, with a mean depth of 34-3/4 inches. . . . For the large table the space required varied from a minimum of 26 X 40-1/2 inches to a maximum of 28 X 44-1/2 inches, with a mean depth of 42-3/4 inches. . . . (pp. 5-6)

Toy Storage

In 1952 McCullough pointed out:

Many toys used indoors, such as dolls, toy animals, mechanical toys, blocks, books, and small games, can be stored on shelves 12 inches deep. A minimum width of at least 36 inches is suggested for the unit, but 48 inches is preferable. The height may vary, but if kept to 48 inches all the shelves will be within reach of small children (p. 22).

In the study by Johnson (1952), minimum toy storage space was planned to accommodate the types of play materials found most frequently in the twelve families studied that had ten or fewer types. Liberal storage space was planned according to the types of play materials found most frequently in the thirty families studied that had from nineteen to twenty-six types.

The different types of play materials were divided for storage in three main rooms: the child's bedroom for the active play materials; the kitchen for creative and imaginative toys; and the living room for materials for manipulative and quiet play.

The space planned for the minimum types of play materials stored in the kitchen was a low shelf 18 inches long, 12 inches wide, and 6 inches high. This shelf was ample for storing children's kitchen utensils, such as a cup, tin can, wooden spoon, and pie pan. Space in the kitchen for the liberal toy storage required a shelf 14 inches long, 6 inches wide, and 6 inches high for a tin cup, a tin can, a box of crayons, and a pair of scissors. A child's table and chair unit, which consisted of a table 25 inches long, 18 inches wide, and 18 inches high with a chair 13½ inches long, 13 inches wide, and 23½ inches high, required an area 25 X 31 inches or 5.4 square feet when in use and 25 X 22 inches when stored.

Space for minimum storage units for the living room required a low shelf space 16 inches long, 11 inches wide, and 13 inches high to store books and blocks for quiet play. Space for liberal toy storage required an open shelf unit 48 inches long, 11 inches deep, 26½ inches high to store three stuffed animals, three boxes of puzzles, a record player, 7-inch and 10-inch records, a doll, a tinker-toy, blocks and books.

CHAPTER III

PROCEDURE

The purpose of this study was to determine the extent that two open-plan house designs could accommodate the activities of family living in each of the five stages of the family life cycle. To achieve this purpose five steps were taken:

1. A hypothetical family was identified. The five stages of the family life cycle that were defined by Agan and Luchsinger were used in designating the ages of the individuals of the hypothetical family. The ages in years of the individual family members living at home were:

<u>Stage</u>	<u>Husband</u>	<u>Wife</u>	<u>Girl</u>	<u>Boy</u>	<u>Girl</u>
	<u>Years</u>				
Beginning Family	24	22			
Expanding Family	29	27	5	2	1/4
Launching Family	41	39	17	14	12
Middle-Age Family	47	45			18
Old-Age Family	67	65			

2. House Design A was selected from a number of house plans the writer had designed. House Design B was selected from the 1973 edition of Houses and Plans. Each

house design was drawn to the scale of $1/4" = 1'$. House Design A was reduced 52 per cent, and House Design B 50 per cent. (See Appendix A.) The two house designs differed in the shape of the family living areas. The living area of House Design A was rectangular in shape and measured 686 square feet. House Design B had an L-shaped living area that measured 650 square feet.

3. The living area of each house design was drawn separately from the entire house design in the $1/4" = 1'$ scale. The floor plans of the living areas were reduced 32 per cent for House Design A and 24 per cent for House Design B. (See Appendix B.)

4. Copies of the floor plans were provided for each of the five stages of the family life cycle. The specified amounts of space, furnishings, and storage were illustrated for the selected family living activities: food preparation, dining, business, ironing, sewing, leisure, entertaining, hobbies, and children's indoor play. The specified amount of space for each activity was drawn to scale on the floor plans with short broken lines. The furnishings and storage units were designated by letters of the alphabet. The furnishings and storage units with their recommended measurements were keyed as follows:

<u>Furnishings and Storage Units</u>	<u>Letter</u>
Dining tables and chairs	A
*Tables - 24" X 42", 48" X 42", 60" X 42"	
Chairs - 19" X 19- $\frac{1}{2}$ "	
Storage units for dinnerware	B
*20" X 36", 20" X 42", 25- $\frac{1}{2}$ " X 60"	
Desk and shelves	C
Desk - 36" X 20"	
Shelves - 10" X 36"	
Storage unit for sewing and ironing supplies 48" X 24"	D
Game table and chairs.	E
Table - 36" X 36"	
Chairs - 19" X 19- $\frac{1}{2}$ "	
Storage unit for hobby supplies.	F
82" X 24"	
Sofa - 30" X 84"	G
Lounge chair - 32" X 32"	H
End table - 18" X 28"	I
Coffee table - 23" X 45"	J
Storage unit for leisure activities.	K
18" X 38"	
Television console	L
17" X 32"	
Child's chair.	M
15" X 16"	
Television/stereo console.	N
20" X 60"	
Three-height table and chairs.	O
Table - 18" X 20" X 22"	
Chairs - 13-1/2" X 13"	
Toy storage.	P
Play pen - 40" X 40"	Q
Ironing board - 15" X 60"	R

*Dimensions required during the stages of the family life cycle are explained in Chapter IV.

5. Each activity area was identified with a specific color.

<u>Activity</u>	<u>Color</u>
Food preparation.	Orange
Dining.	Green
Business.	Yellow
Ironing	Brown
Sewing.	Blue
Leisure	Purple
Entertaining.	Red
Hobbies	Gray
Children's indoor play. .	Pink

CHAPTER IV

PRESENTATION AND ANALYSIS OF FLOOR PLANS

The accommodation of areas for the family living activities are designated in House Design A and House Design B for each stage of the family life cycle. Five floor plan designs illustrate the specified amount of space, furnishings, and storage the hypothetical family need for the family living activities throughout the family life cycle. The floor plans are explained in the first section of this chapter and analyzed in the second section.

Presentation of Floor Plans

The floor plans of House Design A are presented together, as are those of House Design B. They are arranged consecutively, with the floor plan for the beginning family stage first and the floor plan for the old-age family stage last. (See Appendix B.)

The family living activities selected from the review of the literature for the five stages of the family life cycle are food preparation, dining, business, ironing, sewing, leisure, entertaining, hobbies, and children's indoor play. The recommended space, furnishings, and storage for those selected family living activities are

found to be accommodated in House Design A and B for the five stages of the family life cycle as follows:

Food Preparation

The activities associated with food preparation are the only activities that could be accommodated in the kitchen of House Design A. Therefore, the entire kitchen of House Design A is designated for food preparation. A width of 48 inches is designated in front of the cabinets and appliances for food preparation in the kitchen area of House Design B. The space designated for food preparation in both house designs remain the same throughout all the stages of the family life cycle.

Dining

Throughout the family life cycle, the dining chairs measure 19 X 19- $\frac{1}{2}$ inches. The storage units accommodate place mats, linens, china, glassware, and silverware needed for the number of persons in the family stage. Research was not found for the dimensions of the storage units for a specified number of persons. Therefore, the writer determined the sizes required for the various stages of the family life cycle from the square footage of storage space determined by the Committee for the Hygiene of Housing for a specified number of persons. The activity area designated on the floor plans include space for the dining table, chairs, and an allowance of 36 inches for chair space.

For family dining, the beginning family could manage with a table 24 X 42 inches with two chairs. When guests would come for dinner, the table could be extended to 72 inches to seat 6 persons with the use of the 4 chairs from the game table. A small buffet 20 X 36 inches should be sufficient for the young couple.

In the expanding family stage, the dining table was enlarged to 48 inches for everyday use. Four chairs would be needed, plus a highchair for the infant. Storage space would need to be increased. A buffet 20 X 42 inches with a hutch or china cabinet should be adequate.

The dining table with a length of 60 inches would need to be in use everyday for the launching family stage. Five chairs would be needed and also a larger buffet and china cabinet of 25- $\frac{1}{2}$ X 60 inches.

With only one child still living at home in the middle-age family stage, the dining table could be returned to the length of 48 inches to be used with 3 chairs. A smaller buffet and china cabinet, 20 X 42 inches, could be used to store supplies for the three persons.

When the couple is alone again in the old-age family stage, the table could be returned to the length of 24 inches. Only 2 chairs would be needed at the table for everyday use and a buffet and china cabinet of 20 X 36 inches.

Business

Business activities in the home include keeping financial records, writing letters and cards, writing menus, and using the telephone. The business center is planned for general household matters for all the stages of the family life cycle. Space is designated in each house design for a desk that is 36 inches wide, 20 inches deep, and 28 inches high. Storage space is provided by three wall shelves 10 X 36 inches above the desk, two drawers 12 X 12 inches below the writing surface on the left side of the chair, and one drawer 21 X 3 inches above the knee space. A clearance space of 36 inches is included for using the unit. The unit is to accommodate stationery, letters, miscellaneous desk supplies, clippings, cook books and recipe files, a dictionary, financial records, and a telephone.

Ironing

Ironing is another activity that the amount of space needed is the same in all the stages of the family life cycle. In each house design 24 square feet is designated for ironing, which include 6 square feet for the ironing board, 6 inches for the sides and back, and 2 feet 3 inches for the front. Storage for the iron and ironing board are included in the storage for the sewing supplies.

Sewing

Space for sewing is also designated in each stage of the family life cycle. A storage unit 4 feet wide, 2 feet deep, and 7 feet high is designated in each house design for the sewing supplies, ironing board, iron, and a portable sewing machine. An area approximately 34 square feet is designated for using the machine.

Leisure

The types of leisure activities carried on in all the stages of the family life cycle are: reading magazines, books, and newspapers; resting--sitting or lounging; conversing; listening to the radio and stereo; and watching television. Although the types of leisure activities remain the same throughout the family life cycle, the amount of space needed in each stage differ due to the number of family members living at home during that particular stage.

All the furniture and storage units for the leisure activities designated in the floor plans have a 3-inch clearance from the sides and back. The furniture that have a clearance of 18 inches in front are the sofa, lounge chairs, and the children's chairs. The end tables have a clearance of 12 inches in front, except when they are designated in a corner between a sofa and lounge chair. There is a 30-inch clearance in front of the storage units,

television console, and television/stereo console. The coffee table has an 18-inch clearance on all four sides.

In the hypothetical family, the young couple in the beginning family stage do not have any children. The furniture and storage needs for leisure activities of the beginning family are the basic pieces that are designated in all the family stages: sofa, two lounge chairs, end table, coffee table, and two storage units.

At the expanding family stage of the hypothetical family, the furnishing needs of the husband, wife, 5-year-old girl, 2-year-old boy, and 3-month-old infant are greater than those of the beginning family. Because the children are small, the family would stay at home more. Consequently, an end table, storage unit, television console, and two chairs for the children are added to the leisure area.

At the launching family stage, teen-agers are at home and the furnishing needs for leisure activities are greater than during any other stage of the family life cycle. For this family stage, the children's chairs are no longer needed. The television/stereo console would replace the television console, and two extra lounge chairs would be added.

The husband, wife, and younger girl of 18 make up the middle-age family. With the two older children away at college or married, the furniture needs are not as great

as in the launching family stage. Therefore, the storage unit added during the expanding family stage and the two extra lounge chairs added during the launching family stage are not particularly needed during this stage. Thus, the furniture and storage needs of this family stage are: sofa, two lounge chairs, two end tables, coffee table, two storage units, and a television/stereo console.

In the old-age family stage, only the husband and wife are at home. The furnishing needs for leisure activities are very similar to those of the beginning family. The same basic furniture and storage units needed for the beginning family are also needed for the old-age family stage with the addition of a television console. In essence, the furnishing needs are: sofa, two lounge chairs, end table, coffee table, two storage units, and a television console.

Hobbies

The hobbies that are dominant in all the stages of the family life cycle, but vary in priority in each stage are: collecting books and art objects, light painting, drawing, photography, handwork, and handicrafts. An additional hobby that is carried on in the expanding and launching families is model making.

A storage unit 6 feet 10 inches long, 2 feet deep, and 6 feet 6 inches high, is designated to accommodate the

hobby supplies in each house design for each stage of the family life cycle. The unit also provides space for the card table and four folding chairs. The collected books and art objects are displayed on the unit, and also on the storage units that are designated for the leisure activities.

Handwork, painting, drawing, model making, and handicrafts are usually engaged in while sitting in the lounge chairs, on the sofa, and at the card table. An area 8 X 8 feet or 64 square feet is designated in each house design for a card table and four folding chairs. This area allows 30 inches from the table on each side for sitting and rising. The lounge chairs and sofa are designated for the leisure activities. Space is not designated for photography, since it is not carried on in one particular location. The shelves of the storage units and walls are used to display the photographs.

Entertaining

According to the literature, the types of entertaining are somewhat similar in the varying stages of the family life cycle. Entertaining for the beginning family can include small dinner parties for six, table games and cards for four, and get-togethers with ten to twelve people when light refreshments or buffet dinners would be served. In the expanding family, the entertaining consists of

children's birthday parties, table games and cards for four, and small get-togethers with six to eight people at which light refreshments are served. More frequent entertaining occurs in the launching family with teen-agers and parents getting together separately. Four to twelve people can enjoy dancing and light refreshments. Entertaining may also consist of card games for four. In the middle-age family, dinner parties for four to six and groups from four to twelve people are entertained with light refreshments or buffet dinners. Card games for four are also popular. Small gatherings and dinners for four to six people and card games for four may be the extent of entertaining for the old-age family. Frequent visiting occurs in all the stages of the family life cycle.

In planning space for a dinner party for six, a table 42 X 72 inches with 6 chairs and a width of 30 inches behind each chair for sitting and rising are included. Therefore, space for a dinner party is designated in each house design for the beginning, middle-age, and old-age family stages.

Space is not shown for small parties, since additional seating could be accommodated from the chairs of the dining and card tables, and the entire living area could be used for the occasions.

Children's Indoor Play

Play Area

The expanding family stage is the only stage of the family life cycle that space is designated for children's indoor play. In each house design for the expanding family stage, an area of 70 square feet is designated for creative, manipulative, and quiet play for three children. This area includes a three-height table 18 X 20 X 22 inches with two chairs 13½ X 13 inches, free space for floor play, and a play pen that is 40 X 40 inches.

Toy Storage

An open shelf unit 48 inches long, 11 inches deep, and 26½ inches high is designated to accommodate three stuffed animals, three boxes of puzzles, a record player, 7-inch and 10-inch records, a doll, a tinker-toy, blocks, and books.

Analysis of Floor Plans

In House Designs A and B there are five activities that the amount of space, furnishings, and storage needed remained the same throughout the family life cycle. The activities are ironing, sewing, hobbies, business, and food preparation. Dining, leisure, and entertaining are the activities that the amount of space, furnishings, and storage vary in each stage of the family life cycle.

House Design A

The architectural features of House Design A provide natural areas for several activities. For instance, the fireplace provides the center of interest for the leisure activities, and the floor-to-ceiling windows at the rear of the house plan provide the view and natural light for dining. Thus, the areas for leisure and dining are designated in front of the fireplace and rear windows, respectively, in each stage of the family life cycle.

The hobby area is shown to the right of the area for leisure activities in each stage of the family life cycle. In the beginning family stage the business area is beside the hobby area, while in the expanding, launching, middle-age, and old-age family stages, it is on the other side of the kitchen wall.

In the beginning, middle-age, and old-age family stages, the area for entertaining with dinner parties is naturally in front of the rear windows with the dining area. Thus, the areas overlap. The dining table for dinner parties is drawn with broken lines to show its' extension.

The sewing area is placed beside the dining table in the beginning, launching, middle-age, and old-age family stage. Due to the area for children's indoor play being near the dining area, the sewing area in the expanding family stage is near the hobby area. The area for ironing

is planned near the sewing area in each stage of the family life cycle.

Therefore, with the living area of House Design A being rectangular in shape and having a fireplace and floor-to-ceiling rear windows, the designation of the various activity areas are quite similar throughout the family life cycle. The greatest difference in arrangement of areas occurs in the expanding family stage, due to the placement of the children's indoor play area.

Overlapping of Activity Areas

To accommodate the family living activities in House Design A for each of the five stages of the family life cycle, the various activity areas overlap. The overlapping areas of the beginning family stage are those for dining, entertaining, sewing, and ironing. It would seem that those four activities would not be carried on simultaneously; therefore, the activities would not interfere with each other.

In the expanding family stage, the area for the children's indoor play overlap the area for dining. Even though these areas may be used at the same time, there should not be much interference, if any. One conflict that might occur in the expanding family stage is the overlapping of the areas for business, ironing, sewing, and hobbies. If the ironing board is not in place and the wife is sewing and

the husband is attending to the household affairs, then the activities would not interfere with each other. Or if the wife is ironing and not sewing and the husband is attending to the household affairs, the wife could move the ironing board toward the front of the house and have sufficient space.

In the launching family stage, the areas for dining, sewing, and ironing overlap, but at no interference with each other. Both the middle-age and old-age family stages are similar in that the areas that overlap are dining, entertaining, sewing, and ironing. As with the beginning family stage, those four activities would not be carried on simultaneously, thus not interfering with each other.

House Design B

House Design B with its L-shaped floor plan offers more flexibility in arrangement of activity areas. In the expanding, middle-age, and old-age family stages, the area for leisure activities is placed by the front windows. In the beginning family stage, the area for leisure activities is at the back of the right-hand side of the floor plan. And in the launching family stage, the entire right-hand side of the living area is planned for leisure activities.

The hobby area is at one end of the area for leisure activities in the beginning, expanding, middle-age, and

old-age family stages. It is located at the back side of the fireplace in the launching family stage.

In the beginning, expanding, middle-age, and old-age family stages, the area for business is placed to the right of the food preparation area. In the launching family stage, it is at the end of the fireplace.

Naturally, the dining area is planned beside the food preparation area in each stage of the family life cycle. But for entertaining with a dinner party, the table is extended and placed further to the right nearer the fireplace in the beginning, middle-age, and old-age family stages.

In each stage of the family life cycle, the area for sewing is beside the dining table. The area for ironing is in front of the back windows in the beginning, launching, and middle-age family stages. But it is by the fireplace in the expanding and old-age family stages.

The area for the children's indoor play in the expanding family stage is shown in the center of the living area in front of the back windows.

Overlapping of Activity Areas

To accommodate the family living activities in House Design B for each of the five stages of the family life cycle, the various activity areas overlap. The beginning family only had the entertaining area to overlap the areas

for business, sewing, and ironing. Thus, there would be no interference since when the couple entertained they would not be sewing, ironing, or attending to the household affairs.

In the expanding family stage, the areas for food preparation, sewing, and dining overlap. Since the mother would not do the actual cooking and sewing at the same time but maybe alternately, the areas should not be in conflict.

There is more overlapping of activity areas in the launching family stage. The areas for food preparation, dining, sewing, hobbies, ironing, and business overlap. There may be some conflict if all the areas are being used simultaneously, especially with three teen-agers living at home.

The overlapping areas in the middle-age family stage are similar to those in the old-age family stage. The overlapping areas are food preparation, dining, sewing, entertaining, business, and ironing. Unlike the launching family stage, there should not be any conflicts since only three persons are living at home during the middle-age family stage and two persons during the old-age family stage, and they would not be sewing, ironing, or attending to the household affairs while dining or entertaining.

Therefore, in the rectangular open-plan of House Design A, the family living activities could be accommodated

without any conflicts in the beginning, launching, middle-age, and old-age family stages. Only in the expanding family stage would there be some conflict, but it could easily be worked out.

In the L-shaped open-plan of House Design B, the family living activities could be accommodated without any conflicts in the beginning, expanding, middle-age, and old-age family stages. In the launching family, there might be some conflict if the participation of all the activities is simultaneous. But with teen-agers having their own room and seeking privacy so much, the accommodation of the activities could be worked out.

CHAPTER V
SUMMARY, CONCLUSIONS
AND RECOMMENDATIONS

Summary

This study was designed to determine the extent to which two open-plan house designs could accommodate the activities of family living in each of the five stages of the family life cycle. Activities were based on a hypothetical family as it moved through the five stages of the family life cycle: beginning family stage, expanding family stage, launching family stage, middle-age family stage, and old-age family stage. The living areas of the two selected open-plan house designs varied in shape: House Design A was rectangular and measured 686 square feet, and House Design B was L-shaped with 650 square feet.

From the review of the literature, the family living activities were categorized into nine groups: food preparation, dining, business, ironing, sewing, leisure, entertaining, hobbies, and children's indoor play. The amount of space, furnishings, and storage needed to carry on these selected family living activities as summarized in the review of the literature was used.

In each of the two house designs, the amount of space needed to carry on each family living activity was

measured, outlined with broken lines, and identified with a specific color. The furnishings and storage units were drawn in place and identified by letters of the alphabet. Five floor plan designs were illustrated for each house design, one for each stage of the family life cycle.

The amount of space, furnishings, and storage needed for ironing, sewing, business, hobbies, and food preparation remained the same throughout the family life cycle. Dining, leisure, and entertaining were the activities that the amount of space, furnishings, and storage varied in each stage of the family life cycle.

In both house designs, there are overlapping of activity areas. More of the activity areas overlapped in House Design B than in House Design A. In both house designs, more overlapping occurred with the area for entertaining with dinner parties. Since the area for sewing was designated at the dining table, except in the expanding family stage of House Design A, it overlapped with the area for family dining. In the expanding family stage of House Design A, the sewing area and hobby areas overlapped. In either house design, there was no overlapping of the area for leisure activities and hobbies.

Conclusions

The use of open planning for family living has expanded throughout the last decade. Formality of living

patterns has given way to the relaxed and casual way of life. From the time of the newly married couple, through the child-rearing years, and back to the couple again, family living activities are constantly changing. Versatility of space needs to be available to accommodate the many changes a growing family makes. With the open-plan, versatility of activity areas and a feeling of relaxation are provided. The family living activities can be carried on in one large area together without having to resort to a separate family room, den, living room, or dining room. Also, money is not spent on furnishings and space not being used everyday, as it is with a formal living room and dining room.

In this study, the family living activities of the beginning family, middle-age family, and old-age family could be accommodated in the two selected open-plan house designs. In the expanding family stage, the family living activities could be accommodated in the L-shaped living area; and in the rectangular shaped living area with minor adjustments. Whereas, in the launching family stage, the family living activities can be accommodated in the rectangular shaped living area, and in the L-shaped living area with minor adjustments.

Therefore, open planning could work very well for the beginning family, middle-age family, and old-age family. In the expanding and launching family stages, minor

adjustments would need to be made if all the activities were carried on simultaneously.

Recommendations

To plan family living areas for versatility, designers need to be aware of the five stages of the family life cycle and the changes involved in each stage. Designers need to know the amount of space, furnishings, and storage needed for the various family living activities, so adequate space could be provided.

More up-to-date research needs to be done on the types of family living activities carried on in the varying stages of the family life cycle, and the types of activities carried on in the kitchen, dining room, and living room.

Study needs to be done on the value patterns of those who live in an open-plan house, as compared to those who live in a house with a closed plan.

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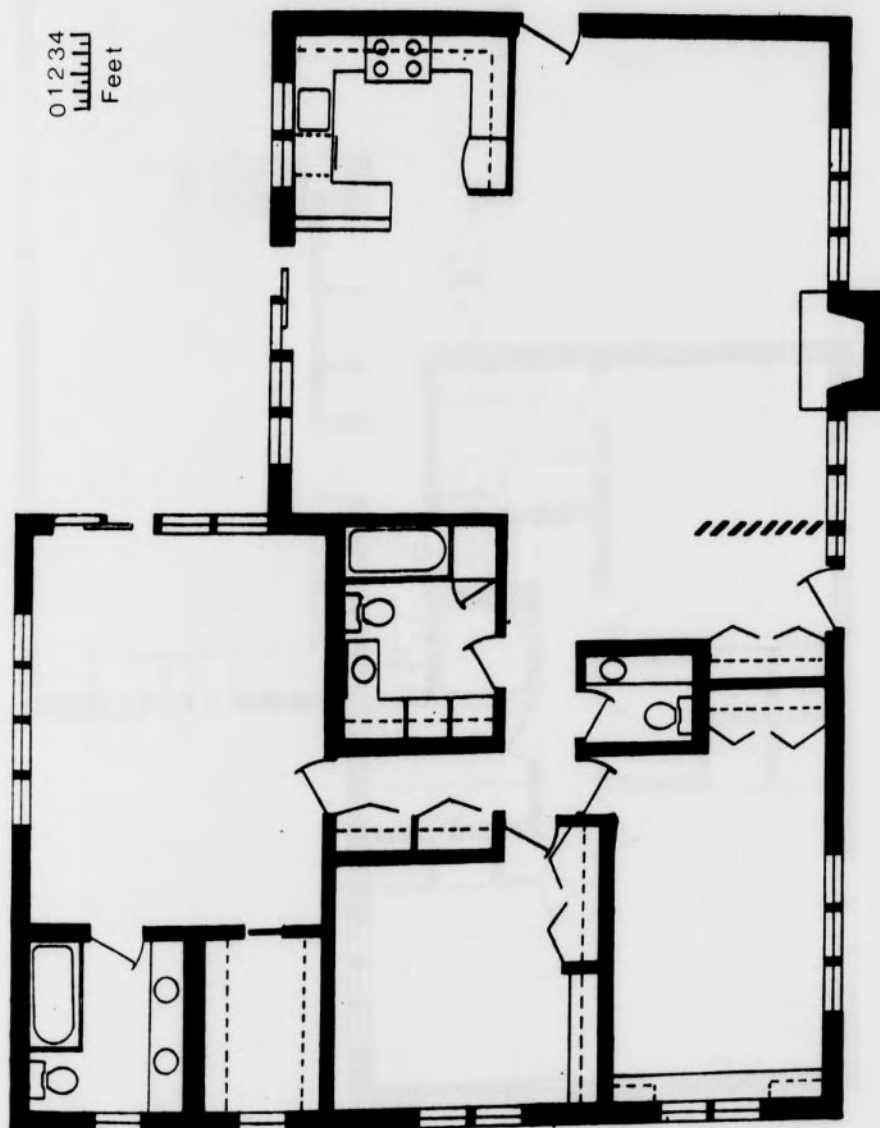


Figure 1. House Design A.

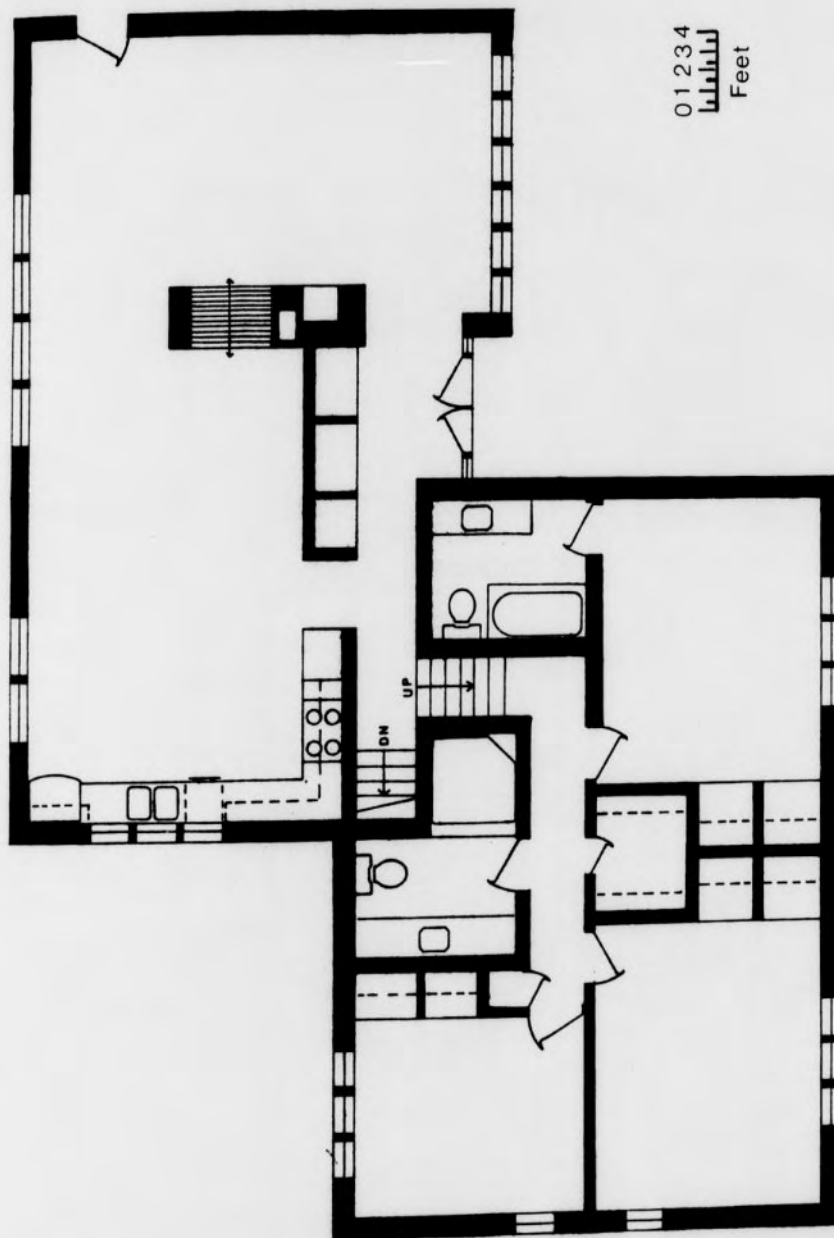


Figure 2. House Design B.

APPENDIX B

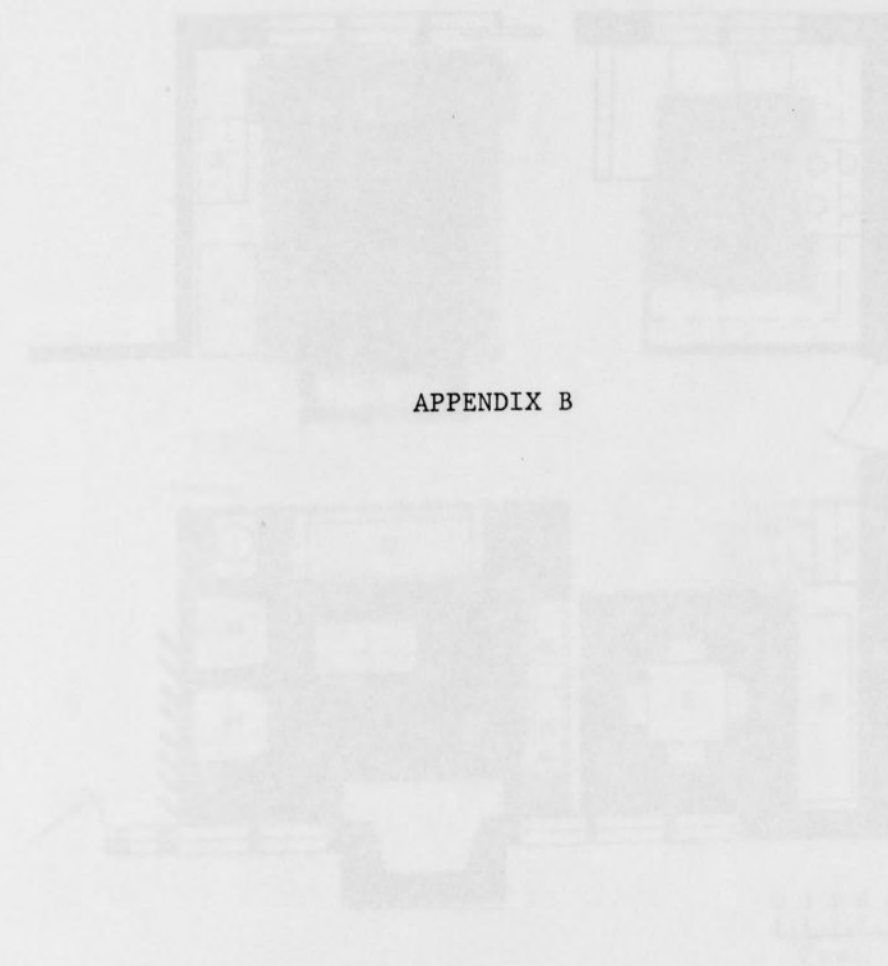


Figure 1. Floor plan for the beginning faculty stage of
Phase 1. Design 1.

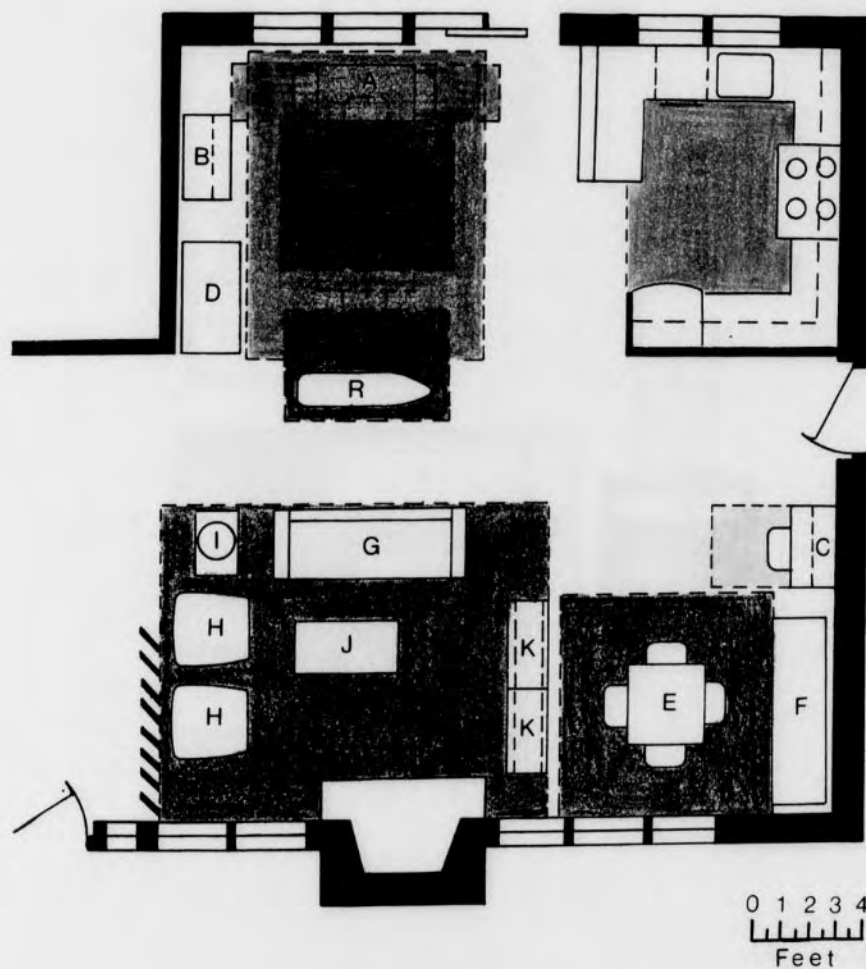


Figure 3. Floor plan for the beginning family stage of House Design A.

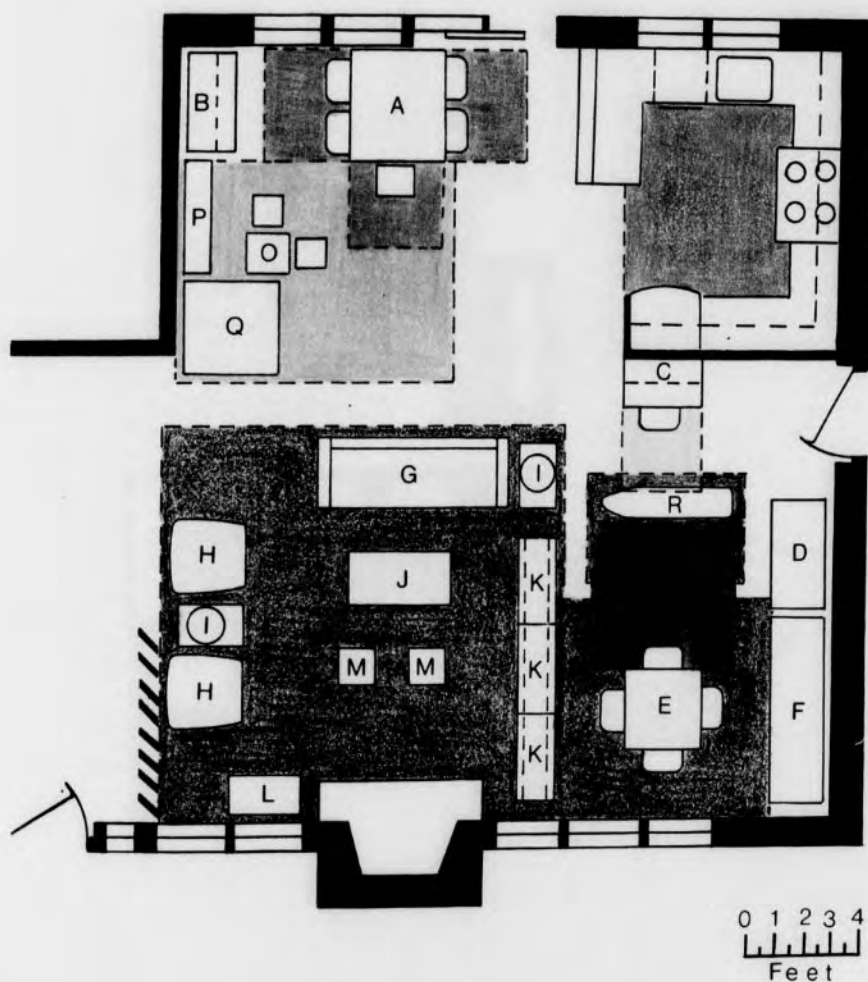


Figure 4. Floor plan for the expanding family stage of House Design A.

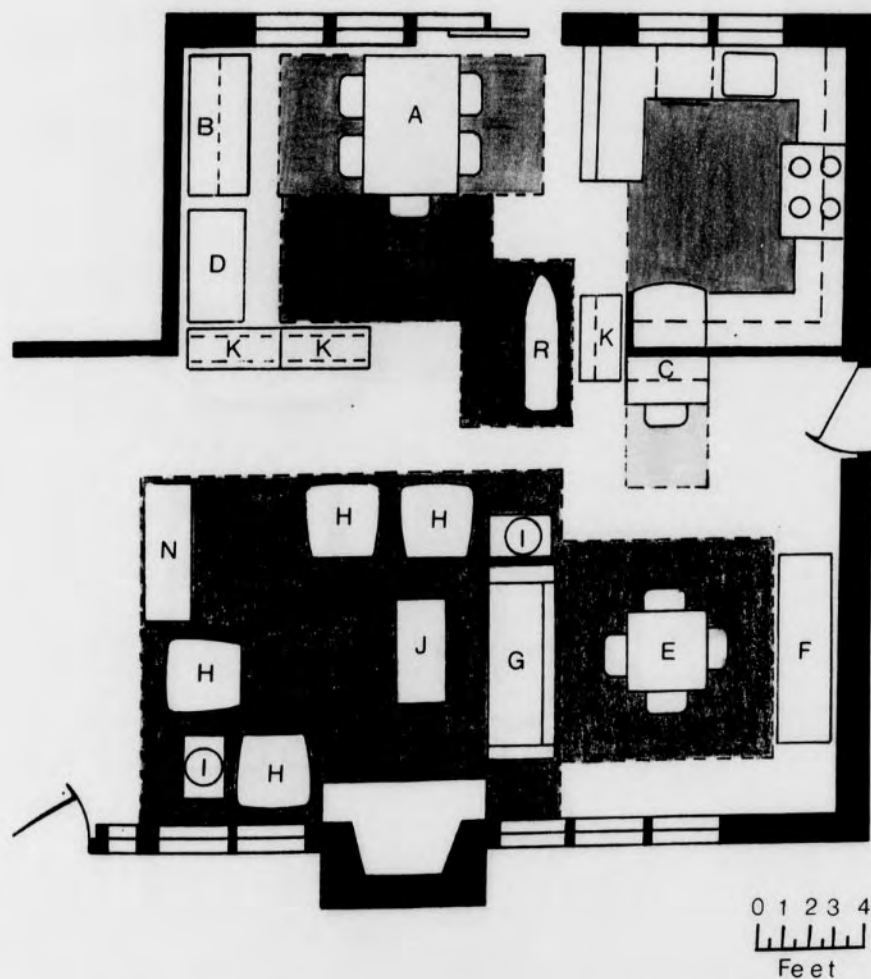


Figure 5. Floor plan for the launching family stage of House Design A.

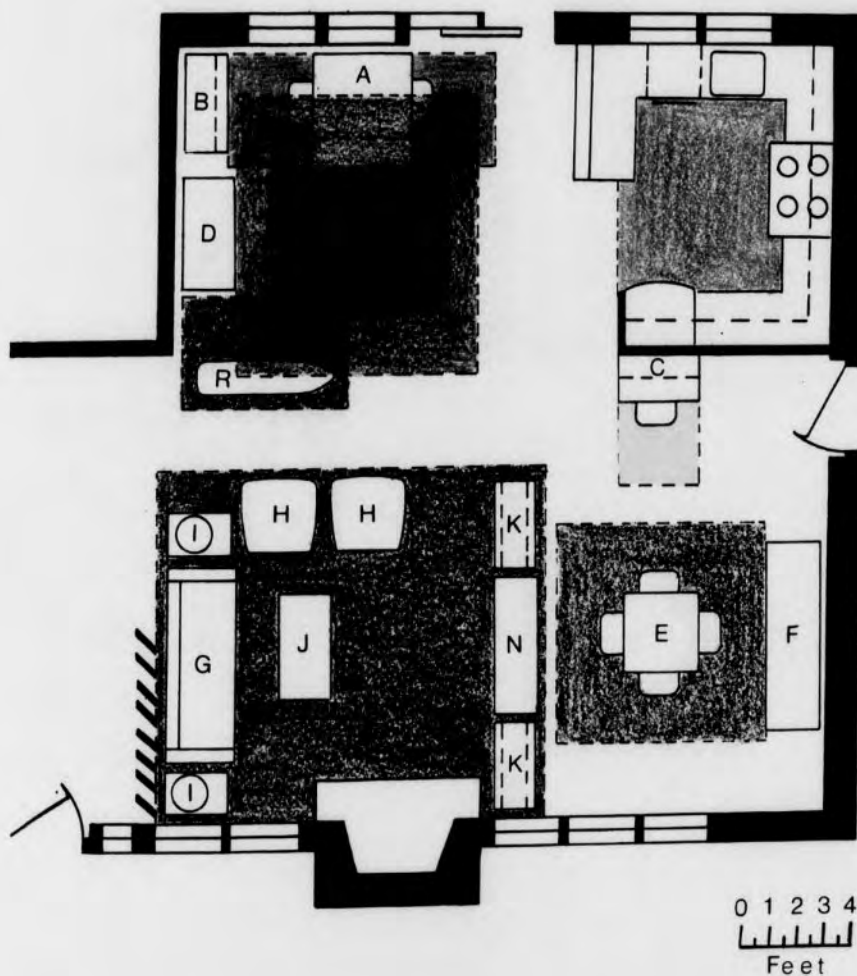


Figure 6. Floor plan for the middle-age family stage of House Design A.

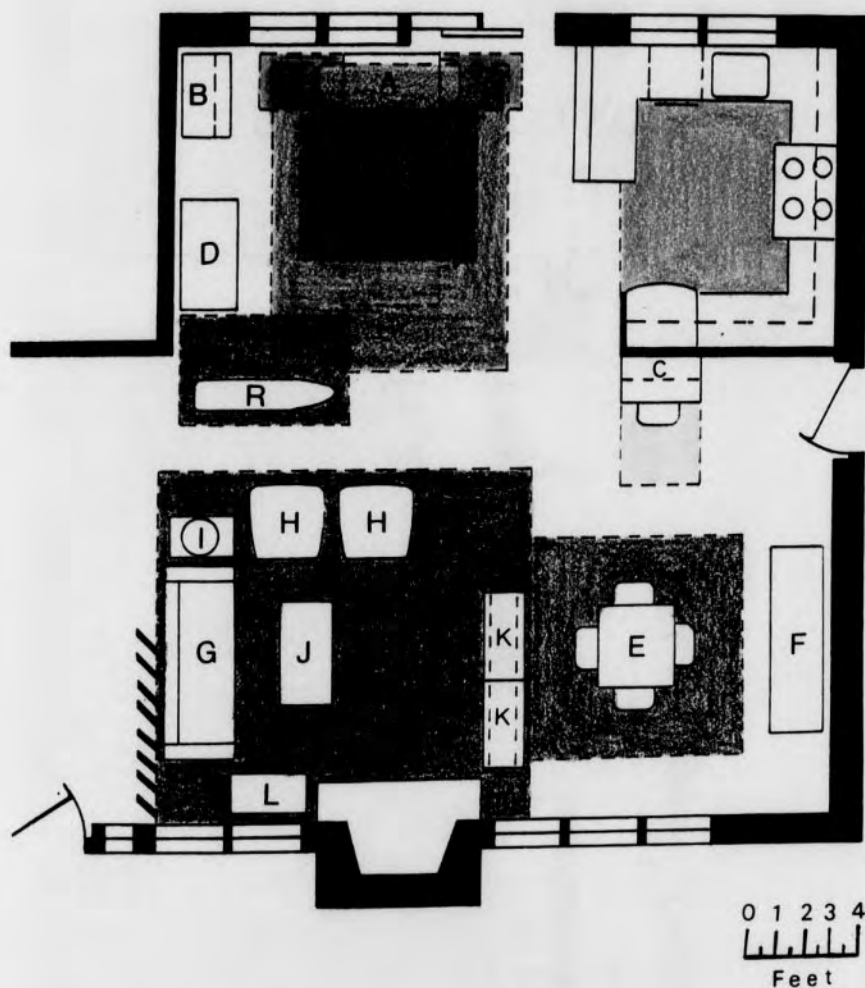


Figure 7. Floor plan for the old-age family stage of House Design A.

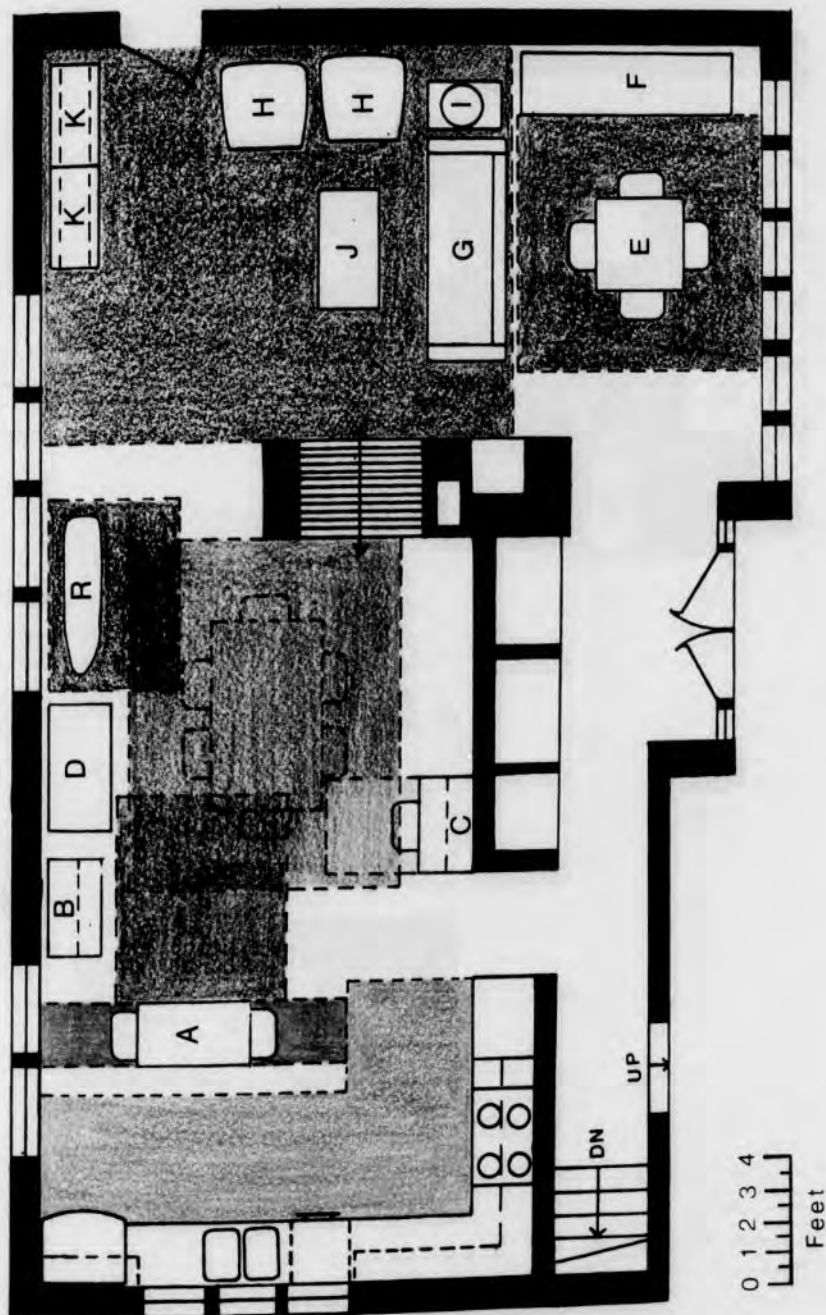


Figure 8. Floor plan for the beginning family stage of House Design B.

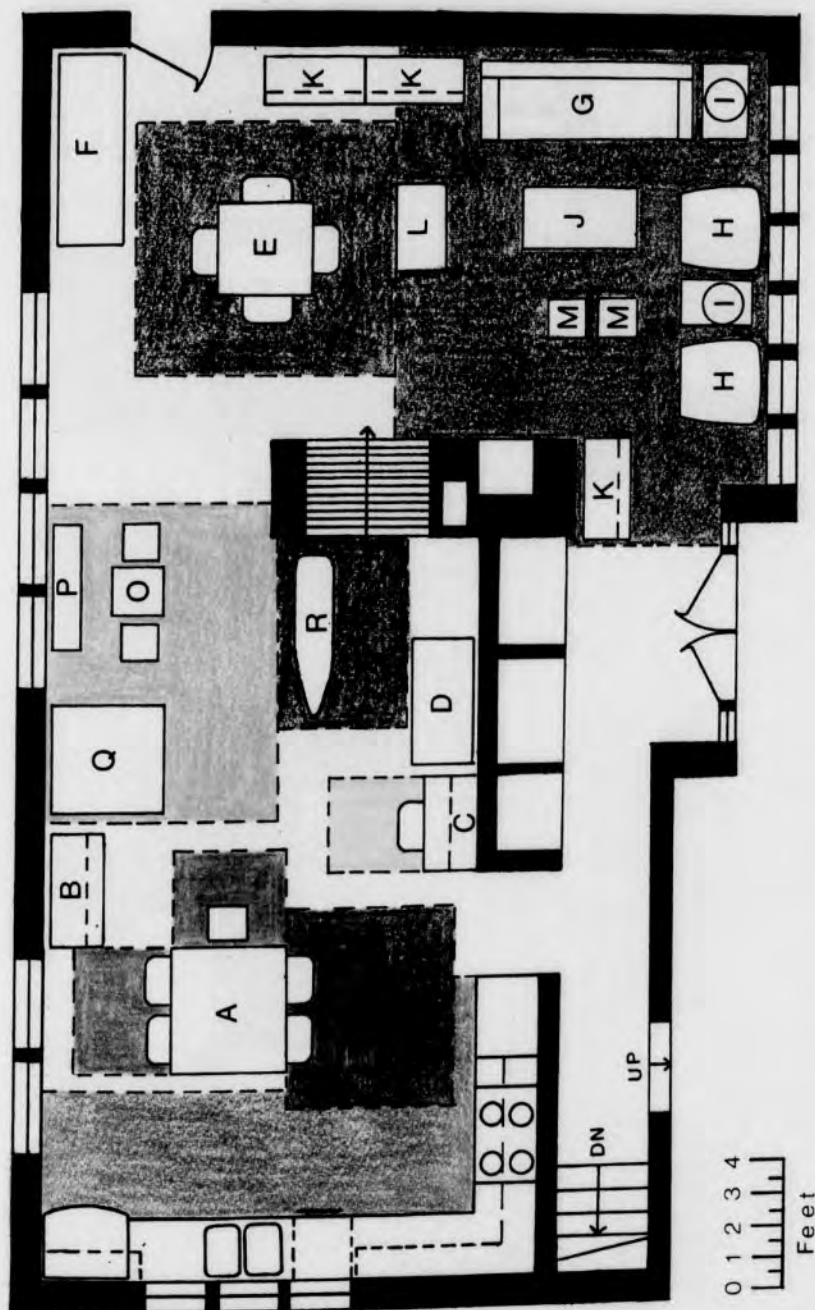


Figure 9. Floor plan for the expanding family stage of House Design B.

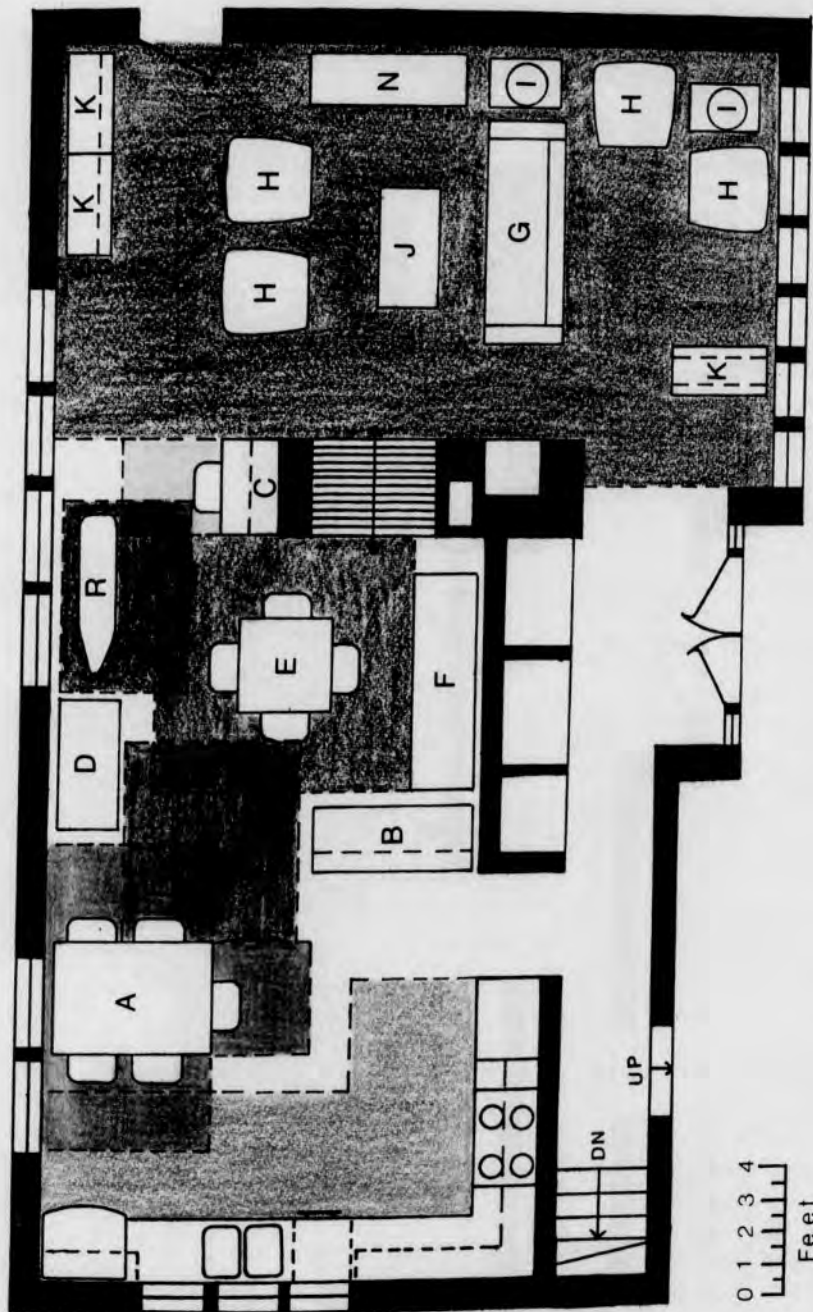


Figure 10. Floor plan for the launching family stage of House Design B.

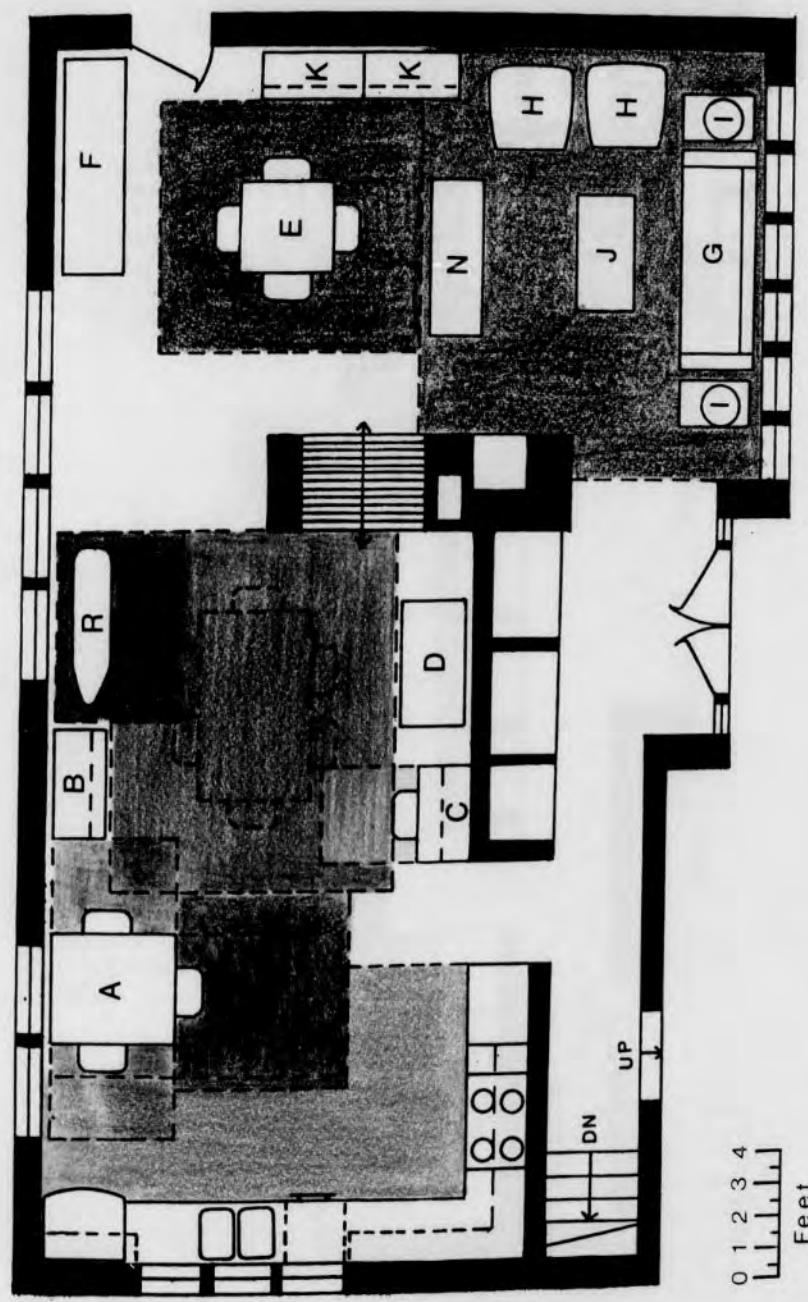


Figure 11. Floor plan for the middle-age family stage of House Design B.

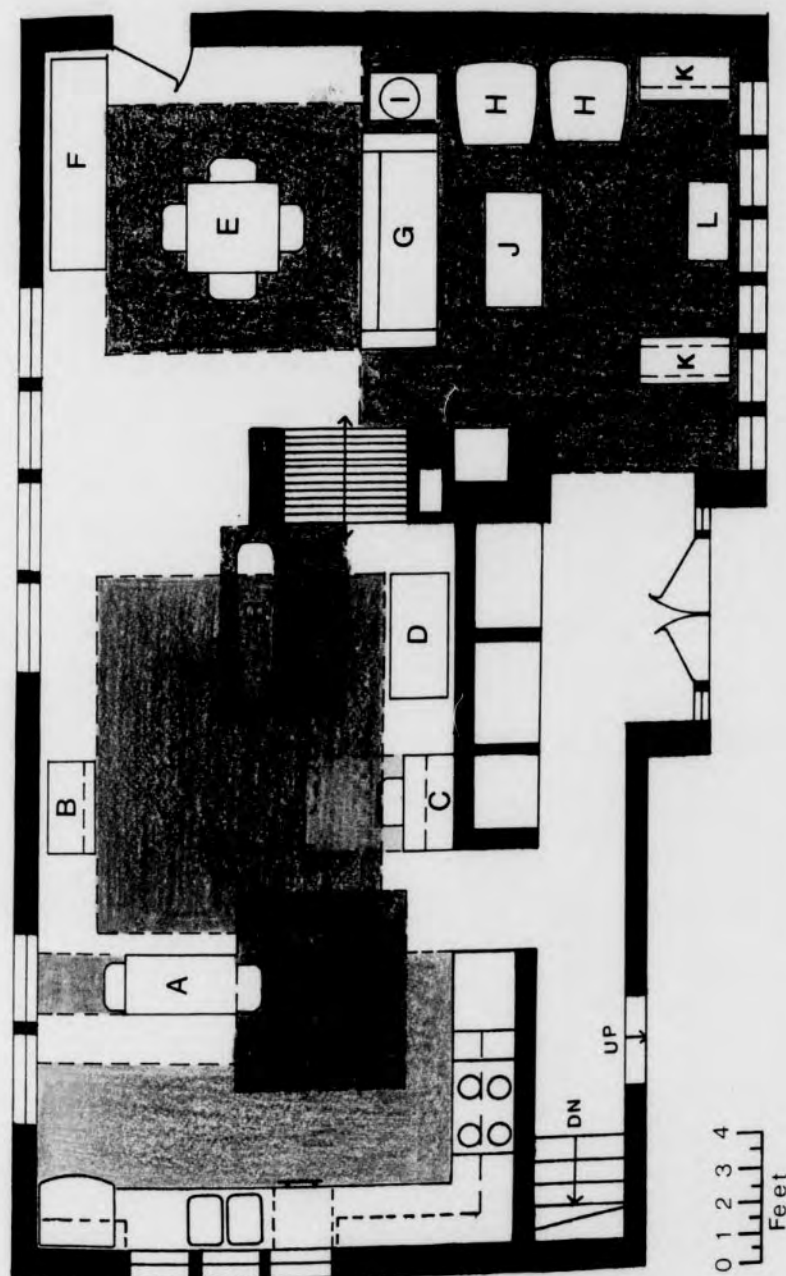


Figure 12. Floor plan for the old-age stage of House Design B.